Quick Reference Guide: AR-BC320/BC260

Why the AR-BC320/BC260

Targeted for busy workgroups, the AR-BC320/AR-BC260 Black to Color IMAGERs offer powerful Multitasking, Advanced Application Integration and Leading Edge Security. With a quick 32/26 ppm output speed (AR-BC320) and 26/17 ppm (AR-BC260), the AR-BC320/AR-BC260 IMAGERs also offer versatile paper handling, optional finishing features, and advanced network connectivity.

LDAP Support

With **LDAP support**, user's simply enter the first few characters of an address and a list of matching names to select from is displayed. **User Authentication** enhances security by requiring users to log in before searching for an address and sending an outbound e-mail.

3,500 Sheet Large Capacity Tray (LCT)

Two-Tray Finisher with stapling or saddle-stitching

ImageSEND Technology

Network scanning with Sharp's **ImageSEND** technology allows for a truly digital workflow, and provides convenience, speed, and increased efficiency. With scan to Desktop, e-mail, and FTP, the AR-BC320/AR-BC260 IMAGERs help reduce overnight and courier costs.

The AR-BC320/BC260 Digital Multifunctional IMAGER

The user-friendly touch screen LCD display guides users step-by-step through each function, making the AR-BC320/BC260 Color IMAGER incredibly easy to operate.

Description: Features & Options

Outstanding Versatility in Black and White AND Color

Out-of-the-box Copying

- ❑ AR-BC320: 32 ppm b/w; 26 ppm color
- ❑ AR-BC260: 26 ppm b/w; 17 ppm color
- ❑ 600 x 600 dpi
- ❑ 500-sheet adjustable paper cassettes and 250-sheet bypass tray
- ❑ Electronic sorting (SOPM)
- ❑ RADF standard on AR-BC320
- ❑ RSPF standard on AR-BC260
- ❑ Prints on heavy paper stocks up to 170 lb. Index/300 gsm

Network Connectivity

- ❑ High-performance PowerPC 7410 CPU/AR-BC320: 500 MHz, AR-BC260: 400 MHz
- ❑ 640 MB maximum memory
- ❑ 40 GB Hard Disk Drive
- ❑ 10Base-T, 100Base-TX, IEEE1284 Parallel Port, and USB 1.1
- ❑ Network scanning
- ❑ Sharpdesk™ Document Management Software
- ❑ PCL5c, PS3 (optional)
- ❑ Sharp Administration Utility Suite
- ❑ Optional fax capabilities
- ❑ Optional Data Security Kit

Paper Handling

- ❑ Three paper desk options
- ❑ 1,000 Sheet Saddle-Stitch Finisher
- ❑ 3,500 Sheet Large Capacity Tray (LCT)
- ❑ Hole-Punch module

Quick Reference Guide: AR-BC320/BC260

Pre-Setup: Tools, MSDSs, & Admonitions

Toolbox Basics

Mechanical

- Screwdriver, Phillips #2
- Screwdriver, Flat #1
- Wrench, 1.5mm Hex head
- Feeler gauges

Electrical

- Voltmeter
- ESD wrist or ankle strap
- Approved surge suppressor
- 30x lighted viewing device

Miscellaneous

- Clean, soft, lint-free cloths
- Alcohol

Material Safety Data Sheets (MSDSs)*

Product Code	Description	MSDS No.
AR-C26TBU	Black Toner/Developer	F-01191
AR-C26TCU	Cyan Toner/Developer	F-01196
AR-C26TMU	Magenta Toner/Developer	F-01197
AR-C26TYU	Yellow Toner/Developer	F-01198

* Download MSDSs at **http://www.sharp-service.com**

Laser Admonition

For your protection, do not remove protective covers or bypass safety interlocks.

Electrical/Electronic Component Admonitions

WARNING: Electrical hazard. Employ proper precautions when working with high-voltage electrical equipment.

!

CAUTION: Improper handling of electronic components can damage the equipment**.**

E S D

Properly ground and wear an electro-static device (ESD) on your wrist or ankle when working with electronic modules. Similarly, use anti-static bags to protect electronic components during storage or shipping.

Sharp Document Solutions Company of America

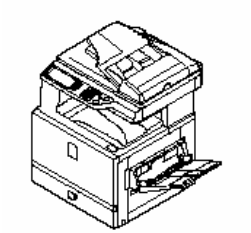
Quick Reference Guide: AR-BC320/BC260

Highlights

Configuration

AR-BC260
(Copier/Printer/Scanner Model)

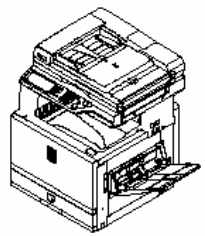
26 PPM Black & White
17 PPM Color



Configuration

AR-BC320
(Copier/Printer/Scanner Model)

32 PPM Black & White
26 PPM Color



Highlights

AR-BC260 / AR-BC320	
▪400 MHz PowerPC / 40GB / 384MB RAM (**AR-BC260**) ▪500 MHz PowerPC / 40GB / 640MB RAM (**AR-BC320**)	▪LDAP with Global Address Search
▪12 Seconds First Copy Out Time Color (**AR-BC260**) ▪ 8 Seconds First Copy Out Time Color (**AR-BC320**)	▪User Authentication and Account Control
▪RSPF 40 sheets – 28 lbs (Standard) (**AR-BC260**) ▪RADF (**AR-BC320**)	▪New Web Password Settings
▪99 Seconds Warm-Up Time	▪HDD Spooling with Job Queuing
▪Image on up to 170# Index Stock	▪SMTP Authentication and POP before SMTP
▪Advanced Copy Features including Color E-Sort	▪Sharpdesk 3.1 / Color Network Scanning (Standard)

Newly Employed Technology			
	Item	**Content**	**Remark**
1	LED printhead employed	Employment of the 4bit LED provides 16-gradation expressions for each of YMCK.	Resolution: 600 dpi Total dots: 7,424)
		Free from mechanical noises which are produced from the unit such as an LSU. Printing is started immediately without waiting for stabilization of the polygon motor speed.	
		Lower power consumption than an LSU.	
2	Oil-less fusing system employed	Development of a new wax-free toner	
		The wax-free fusing system provides a simplified structure and improved paper feed capability.	
		Notes and remarks can be put on a copy image similar to normal page.	

Quick Reference Guide: AR-BC320/BC260

Documentation

Equipment & Service Documentation

Description	Part Number
AR-BC320 Service Manual	SM-AR-BC320 Code: 00ZARBC320A1E
AR-BC260 Service Manual	SM-AR-BC260 Code: 00ZARBC260A1E
***AR-D17N, AR-D18N, AR-D19N** Service Manual Stand/1 x 500 Sheet Paper Drawer Stand/3 x 500 Sheet Paper Drawer Duplex Module/2 x 500 Sheet Paper Drawer	SM-AR-D17N, D18N, D19N Code: 00ZARD19N/A1E
***AR-F13, AR-PN1** Service Manual Saddle Stitch Finisher & Punch Unit	SM-AR-F13, PN1 Code: 00ZARF13//A1E
***AR-FX10** Service Manual ***AR-FX10** Parts Guide Fax Expansion Kit	SM-AR-FX10 Code: 00ZARFX10/AZE PG-AR-FX10 Code: 00ZARFX10/P2E
***AR-LC8** Service Manual Large Capacity Tray	SM-AR-LC8 Code: 00ZARLC8//A1E
***AR-RB1** Service Manual Duplex Bypass/Inverter Unit	SM-AR-RB1 Code: 00ZARRB1//A1E

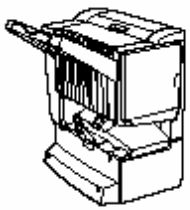
* Optional equipment

Quick Reference Guide: AR-BC320/BC260

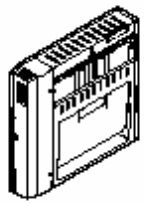
Option Lineup

Option lineup

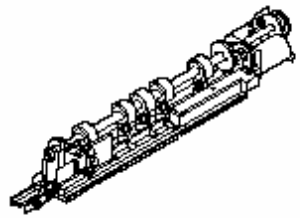
AR-BC260/BC320
(Copier/Printer/Scanner Model)



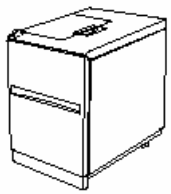
AR-F13/Saddle finisher (Requires Duplex bypass/Inverter unit [AR-RB]).



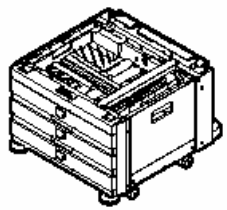
AR-RB1/Duplex bypass/Inverter unit (Requires Desk.)



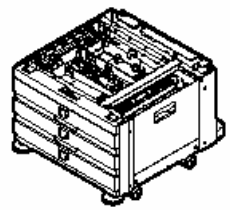
AR-PN1B Punch unit (for saddle stitch finisher [AR-F13])



AR-LC8/Large Capacity Tray (AR-BC260 requires AR-D19N; AR-BC320 requires AR-D17N/D18N/D19N)



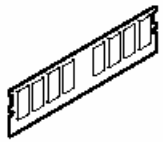
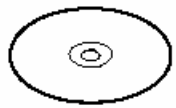
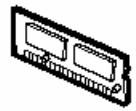
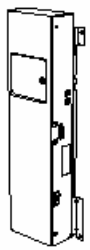
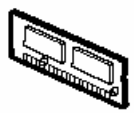
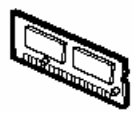
AR-D18N/Paper Feed Module (3-stage paper feed desk) AR-D17N/Paper Feed Module (1-stage paper feed desk)



AR-D19N/Duplex Module + PaperFeed Module (2-stage) (Requires Duplex bypass + Reverse Unit [AR-RB1].)

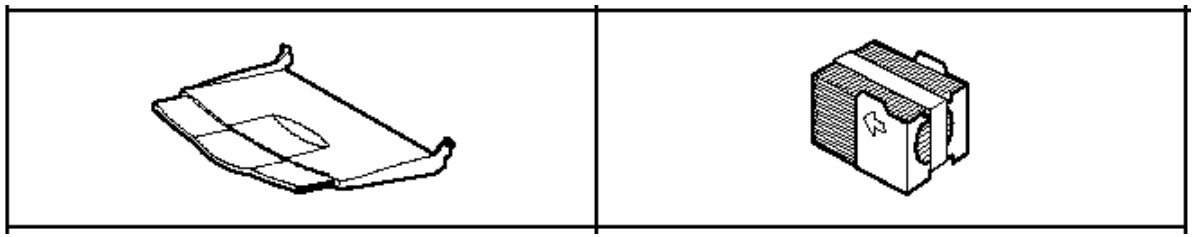
Quick Reference Guide: AR-BC320/BC260

Option Lineup (cont'd)

		
128/256MB Expansion Memory (Local arrangement)	AR-U11M, AR-U15M/Sharpdesk License Kit	AR-PK4/PS3 Expansion Kit
		
AR-FX10 Facsimile Expansion Kit	AR-MM9/FAX Memory (8MB)	AR-FR23U/Data Security Kit (AR-BC260); AR-FR20U/Data Security Kit (AR-BC320)

Quick Reference Guide: AR-BC320/BC260

Option Lineup (cont'd)



AR-TE3/Exit Tray

AR-SC2/Staple Cartridge

STD or ❍ (Yes) : Included in the set. (Included in the base engine.)
OP : Option
N/A or X (No) : No support or no setup

AR-BC260

Basic composition	Copier/Printer/Scanner	Remark
Supply system	SRU	
AR drum cartridge × 4	❍	
AR toner cartridge × 4	OP	
Scanner	❍	
Printer controller board (Base memory: 128 MB)	❍	
HDD	❍	
Soft NIC	❍	
ICU memory	256MB	
Fax-Box	OP	
JOB SHIFTER	❍	
LCC connection module	❍	
RSPF	❍	
Dehumidifier (Engine)	For service kit	
Network scanner expansion kit	❍	

STD or ❍ (Yes) : Included in the set. (Included in the base engine.)
OP : Option
N/A or X (No) : No support or no setup

AR-BC320

Basic composition	Copier/Printer/Scanner	Remark
Supply system	SRU	
AR drum cartridge × 4	❍	
AR toner cartridge × 4	OP	
Scanner	❍	
Printer controller board (Base memory: 128 MB)	❍	
HDD	❍	
Soft NIC	❍	
ICU memory	256MB	
Fax-Box	OP	
JOB SHIFTER	❍	
LCC connection module	❍	
RSPF	❍	
Dehumidifier (Engine)	For service kit	
Network scanner expansion kit	❍	

Options and Part Numbers

Option	Part No.
Saddle-stitch Finisher	**AR-F13**
Hole Punch	**AR-PN1B**
Exit Tray	**AR-TE3**
Large Capacity Tray (3,500 sheet)	**AR-LC8**
Paper Feed Desk (1 x 500 sheets)	**AR-D17N**
Paper Feed Desk (3 x 500 sheets)	**AR-D18N**
Paper Feed Desk (2 x 500 sheets with Duplex Module)	**AR-D19N**
Duplex Bypass/Inverter Unit	**AR-RB1**
Facsimile Kit	**AR-FX10**
Fax Memory Expansion	**AR-MM9**
Postscript Expansion Kit	**AR-PK4**
Extra Sharpdesk License Kits	**AR-U11M or AR-U15M**
Data Security Kit	**AR-FR20U or AR-FR23U**

Quick Reference Guide: AR-BC320/BC260

Basic Specifications

Base Engine

Type

Type	Desk-top
Color support	Full color

Engine Composition

Photoconductor kind	OPC (Drum diameter: ϕ30mm x 4)
Copying method	Electrostatic copying system employing the LED writing head
LED available print area	301 mm
Developing system	Contact, non-magnetic 1-component development
Charging system	Saw teeth scorotron corona charging
Transfer system	Transfer belt structure direct transfer system
Cleaning system	Counter blade cleaning system
Fusing system	Pressure roller fusing system
Fusing unit life	2 years or 100K

Engine Composition (cont'd)

Fusing unit replacement	Replaceable 30min after turning off the power					
Mode switching speed (A → B)			B			
			Normal paper	Heavy paper 1	Heavy paper 2	OHP
	A	Normal paper	–	30 sec	40 sec	40 sec
		Heavy paper 1	30 sec	–	40sec	40 sec
		Heavy paper 2	40 sec	10 sec	–	50 sec
		OHP	45 sec	10 sec	20 sec	–
Oil supply	Oil-less system					
Waste toner process	Self collection of each toner cartridge Waste toner box collection for transfer belt					
Multi print speed (at Max.)	B/W: 26 ppm (A4/Letter) Color: 17 ppm (A4/Letter) [In the case of manual paper feed] B/W: 26 ppm (A4/Letter) Color: 17 ppm (A4/Letter)					
Shifter	Standard (Default setting: Offset OFF)					
Dehumidifier	Service kit					

Shifter

Type	Shifter			
Paper weight	64 to 200g/m² (17 to 54 lbs)			
Paper size (64 to 200g/m²)	Non offset mode (Simple load)		A3W to A6R, 12" x 18" to 8.5" x 5.5", 8K, 16K, 16KR	
	Offset mode		A3 to A6R, 11" x 17" to 8.5" x 5.5", 8K, 16K, 16KR	
Productivity	Non offset mode: Color 17 sheets, B/W 26 sheets Offset mode: Color 16 sheets, B/W 24 sheets			
Offset width	30mm			
Alignment *1		Extending	FR shift	Between jobs
	Non offset mode	Must not fall from the tray.	—	—
	Offset mode	Within 50mm	Within ± 10mm	10mm or more

*1: When A4/Letter recommended paper is used.

Engine Resolution

Resolution	Writing: 600dpi x 600dpi		
Smoothing	None		
Gradation	When copying	Color	Writing: 1 pixel 16 gradations for each color (4 bit) *1 E-sort mode: 1 pixel 2 gradations (1bit)
		B/W	Writing: 1 pixel 2 gradations (1bit)
	When printing	Color	Writing: 1 pixel 2 gradations (1 bit) 16 gradations for each color (4 bit) *1 *2
		B/W	Writing: 1 pixel 2 gradations (1bit) 16 gradations (4 bit) *1

*1: Dither matrix allows printing in 1-pixel, 256-gradation (8bit).

*2: For 4bit mode, an expansion memory of 128MB or more is required in the printer controller.

Base Engine (cont'd)

Warm Up

Warm-up time	99sec or less
Pre-heat function	Yes

Jam Recovery

With the left cover and front cabinet open	About 60 sec	Left for 60sec Normal condition
With the right cover open	About 8 sec	

Image Chip (Printable Area)

Full size	Total circumference 4mm ± 2mm Only when A3 full image is outputted, 6mm or less in total.

* In A3/11" x 17" full image copy, there is no image chip in A3/WLT image.
* When outputting cut position marks, printing can be made in the range of image chip specification.
* When using RSPF, however, A3 full image copy cannot be made.

Power Source

Voltage	100 – 127 V
Frequency	50/60 Hz
Power cord	Inlet type • For optional stand (for AC power supply / Fax Box) * Nighttime mode should be supported.

Power Consumption

Max. power consumption	1.5 kW
Sleep mode	80 W or less

Noise/Ozone

Noise	Operating	B/W	63 dB or less (First)
		Color	63 dB or less (First)
	Stand-by		55 dB or less
	Sleep		40 dB or less
Ozone			0.02 g/m^3 or less

Machine Occupying Dimensions

Machine occupying dimensions (Machine only, with the trays full open)	1,349 x 676 mm (53-1/8 x 26-5/8 inch)

External Dimensions

External dimensions	670 x 676 x 778 mm (26-3 x 26-5/8 x 30-5/8 inch)

Weight

Weight	Copier body: 85 kg (187.5 lbs.) Copier body + photoconductor: 88 kg (194.0 lbs.) Copier body + photoconductor + toner: 95 kg (209.4 lbs.)

Special Tools

No	Name	Part code	Purpose	Note
1	SIT chart (CCD gamma adjustment chart)	UKOG-0280FCZZ	Used to correct CCD gamma characteristics.	
2	Service color test chart	UKOG-0283FCZZ	Used to check color copy quality.	
3	Gray scale chart	UKOG-0162FCZZ	Used to check copy density.	
4	Service color test chart for printer	UKOG-0305FCZZ		New
5	Image density sensor adjustment jig	CPLTM6305FC01	Used to adjust the image density sensor. (Plate with calibration sheet)	New
		TLABZ4843FCZZ	Calibration sheet	New (for replacement)
6	Extension cable for measure high voltage	DHAi-3471FCZZ	Used to check the MC grid and DV bias voltage (Color)	New
7		DHAi-3472FCZZ	Used to check the MC grid and DV bias voltage (Black)	New
8	Starting powder	UKOG-0123FCZZ	Used to reduce friction between the transfer belt and the transfer belt cleaning blade.	
9	Cleaning cloth	UKOG-0289FCZZ	Used to clean the optical system. Wash to reuse.	
10	Level converter	UKOG-0002QSZZ (with serial cable)	Used to download the FLASH ROM program from a PC to the FLASH ROM on the machine.	Commercially available serial cable can be used.
		UKOG-0003QSZZ (without serial cable)		
11	FLASH ROM download program file	Mainte_xxxx.exe	Download (upgrade) the FLASH ROM program for main body section	
12		WDskxxx_d.pgm	Download (upgrade) the FLASH ROM program for Desk unit	
13	Spare FLASH ROM		FLASH ROM (16Mbit x 2) 1pc	The type (capacity) of Flash ROM is determined depending on the kind of Flash ROM (in the PCU PWB, in the ICU PWB, Printer control PWB or in the operation control PWB).
14			FLASH ROM (16Mbit) 1pc	
15			FLASH ROM (8Mbit) 2pcs	
16			FLASH ROM (32Mbit x 2) 2pcs	
17	Magnifying glass		Picture quality check (Mainly the color registration is checked.)	Purchase a commercially available one. (Magnification ratio:20 - 25)

Quick Reference Guide: AR-BC320/BC260

Supplies & Consumables

Supply Systems

No.	Item	Model Name	Content	Life	Commonality with other host machines	Remarks
1	Toner Cartridge (Cyan)	AR-C26TCU	Toner Cartridge (Cyan) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P/J)	* Life : A4 size at Area Coverage 5%
2	Toner Cartridge (Magenta)	AR-C26TMU	Toner Cartridge (Magenta) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P/J)	* Life : A4 size at Area Coverage 5%
3	Toner Cartridge (Yellow)	AR-C26TYU	Toner Cartridge (Yellow) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P/J)	* Life : A4 size at Area Coverage 5%
4	Toner Cartridge (Black)	AR-C26TBU	Toner Cartridge (Black) with IC Chip x 1 (Toner ; Net 525g)	16.7k	Common (AR-C260M/P/J)	* Life : A4 size at Area Coverage 6%
5	Drum Cartridge	AR-C26DU	Drum Cartridge x 1 (Drum/Unit Parts included) Color identification seal (C/M/Y/Bk) x 1 each	50k	Common (AR-C260M/P/J)	
6	Drum	AR-C26DR	OPC Drum x 1	50k	Common (AR-C260M/P/J)	
7	Main Charger Kit	AR-C26MK	Charger Unit x 1 Cleaning Blade x 1 Toner Receiving Seal x 1	50k	Common (AR-C260M/P/J)	

Consumables

Consumables

	Part name	Model name	Content		Life
1	Upper heat roller kit	AR-C26UH	Upper heat roller Heat roller 60T gear Upper heat roller bearing Thermistor Upper heat roller stopper	x 1 x 1 x 2 x 1 x 2	100K *1
2	Lower heat roller kit	AR-C26LH	Lower heat roller Lower heat roller bearing Thermistor Lower heat roller stopper Fusing separation pawl lower	x 1 x 2 x 1 x 2 x 2	100K *1
3	Transfer belt kit	AR-C26TT	Transfer belt	x 1	100K *1
4	Transfer roller kit	AR-C26TX	Transfer roller	x 4	100K
5	Transfer waste toner tank unit	AR-C26HB	Transfer waste toner tank unit	x 1	100K
6	Filter kit	AR-C26FL	Ozone filter A Ozone filter B	x 1 x 1	50K
7	Saddle staple cartridge	AR-SC2	—		
5	Fusing unit	AR-C26FU (230V heater lamp) AR-C26FU1 (120V heater lamp) AR-C26FU2 (100V heater lamp)	Fusing unit for servicing (including upper/lower heater lamps)		*1
6	Transfer belt unit	AR-C26TU	Transfer unit for servicing		100K *1

*1: Replace at 100K or within 2 years

PWB Repair

The PWBs listed below can be forwarded to the following address for repair:

Sharp Electronics Corporation
Product and Board Repair
Department 650
1300 Naperville Drive
Romeoville, IL 60446

Unit	Description	Part Number	Price Rank
AR-BC260	PCU PWB	CPWBN1544DS55	BW
	MFPC-M PWB	CPWBN1601DS52	CW
	ICU PWB	CPWBN1611DS53	CP
	PRTC PWB	CPWBN1596DS53	CV
	AC/DC Power Supply PWB	RDENC0036FCZZ	BU
AR-BC320	PCU PWB	CPWBN1544DS56	BX
	MFPC2 PWB	CPWBN1519DS53	CX
	ICU PWB	CPWBN1611DS52	CQ
	PRTC PWB	CPWBN1596DS52	EB
	AC/DC Power Supply PWB	RDENC0036FCZZ	BU

AR-BC260

Each adjustment item in the adjustment item list is indicated with its JOB number.
Perform the adjustment procedures in the sequence of Job numbers from the smallest to the greatest.
However, there is no need to perform all the adjustment items. Perform only the necessary adjustments according to the need.
Unnecessary adjustments can be omitted. Even in this case, however, the sequence from the smallest to the greatest JOB number must be observed.
If the above precaution should be neglected, the adjustment would not complete normally or a trouble may occur.

JOB No	ADJUSTMENT ITEM LIST			SIMULATION
ADJ 1	High voltage adjustment	ADJ 1A	Main charger grid voltage adjustment	8-2
		ADJ 1B	DV bias voltage adjustment	8-1
		ADJ 1C	Transfer voltage adjustment	8-6
ADJ 2	Image density sensor adjustment	ADJ 2A	Color image density sensor adjustment (adjustment by the adjustment jig)	44-13
		ADJ 2B	Black image density sensor adjustment	44-2
ADJ 3	Image focus, image skew adjustment (LED (writing) unit)			64-1/61-4
ADJ 4	Image registration adjustment	ADJ 4A	Image registration adjustment (Auto adjustment)	50-22
		ADJ 4B	Image registration adjustment (Manual adjustment)	50-20
ADJ 5	Image position/print area adjustment (Print engine section)	ADJ 5A	Main scanning direction image position adjustment (Print engine section)	50-10
		ADJ 5B	Sub scanning direction image position/print area adjustment (Print engine section)	50-5
ADJ 6	Copy image distortion adjustment	ADJ 6A	Scanner (reading) unit parallelism adjustment	
		ADJ 6B	Copy image sub scanning direction distortion adjustment	
		ADJ 6C	Copy image main scanning direction distortion adjustment	
		ADJ 6D	Scan image distortion adjustment	
ADJ 7	Copy image focus (main scanning direction copy magnification ratio) adjustment (CCD unit position adjustment)			48-1
ADJ 8	Sub scanning direction copy magnification ratio adjustment			48-1
ADJ 9	Main scanning direction copy image position adjustment (Scanner (reading) section)			50-12
ADJ 10	Copy image position/image loss/void area adjustment			50-1/50-2
ADJ 11	Copy color balance/density adjustment	ADJ 11A	CCD gamma adjustment (CCD calibration) (Normal document copy mode)	63-3 (63-5)
		ADJ 11B	Copy color balance adjustment (Auto adjustment)	46-24
		ADJ 11C	Copy color balance adjustment (Manual adjustment)	46-21
		ADJ 11D	Copy density adjustment in low-density area (Normally unnecessary to adjust.)	46-1/2
		ADJ 11E	Copy color balance density adjustment (each copy mode) (Normally unnecessary to adjust.)	46-10 to 16
		ADJ 11F	CCD gamma adjustment (CCD calibration) (Copy document copy mode)	63-9
		ADJ 11G	Image edge section gamma/density adjustment (Black text and black line reproduction adjustment) (Normally unnecessary to adjust.)	46-27
		ADJ 11H	Copy color balance adjustment (Single color Copy mode) (Normally unnecessary to adjust.)	46-25
		ADJ 11I	Auto color balance adjustment by user (Copy color balance auto adjustment enable setting and adjustment)	26-53

AR-BC260 (cont'd)

ADJ 12	Fusing pressure adjustment			
ADJ 13	Fusing paper guide position adjustment			
ADJ 14	Document size sensor adjustment	ADJ 14A	Original size sensor detection point adjustment	41-2
		ADJ 14B	Original size sensor sensitivity adjustment	41-2
ADJ 15	Manual paper feed tray paper size sensor adjustment			40-2
ADJ 16	Touch panel coordinates setting			65-1
ADJ 17	Power voltage adjustment	ADJ 17A	3.4 V power voltage adjustment	
		ADJ 17B	5.0 V power voltage adjustment	
ADJ 18	FAX/scanner mode image loss adjustment			50-27
ADJ 19	RSPF scanning position automatic adjustment	ADJ 19A	RSPF scanning position automatic adjustment	53-8
		ADJ 19B	RSPF image lead edge adjustment	50-6
ADJ 20	RSPF lead edge skew adjustment			
ADJ 21	Collective adjustment of image position and magnification ratio	(*1)		50-28
ADJ 22	Printer color balance adjustment	ADJ 20A	Printer automatic color balance adjustment	67-24
		ADJ 20B	Printer color balance adjustment (By the key operator program)	

*1: By executing the collective adjustment of image position and magnification ratio (ADJ21) (Automatic void adjustment SIM50-28), the adjustments of SIM50-10, 48-1, 50-12, and 50-1 can be simply and automatically performed at once.

Note: For detailed instructions, refer to Section 8 of the AR-BC260 Service Manual.

AR-BC320

Each adjustment item in the adjustment item list is indicated with its JOB number.
Perform the adjustment procedures in the sequence of Job numbers from the smallest to the greatest.
However, there is no need to perform all the adjustment items. Perform only the necessary adjustments according to the need.
Unnecessary adjustments can be omitted. Even in this case, however, the sequence from the smallest to the greatest JOB number must be observed.
If the above precaution should be neglected, the adjustment would not complete normally or a trouble may occur.

JOB No	ADJUSTMENT ITEM LIST			SIMULATION
ADJ 1	High voltage adjustment	ADJ 1A	Main charger grid voltage adjustment	8-2
		ADJ 1B	DV bias voltage adjustment	8-1
		ADJ 1C	Transfer voltage adjustment	8-6
ADJ 2	Image density sensor adjustment	ADJ 2A	Color image density sensor adjustment (adjustment by the adjustment jig)	44-13
		ADJ 2B	Black image density sensor adjustment	44-2
ADJ 3	Image focus, image skew adjustment (LED (writing) unit)			64-1/61-4
ADJ 4	Image registration adjustment	ADJ 4A	Image registration adjustment (Auto adjustment)	50-22
		ADJ 4B	Image registration adjustment (Manual adjustment)	50-20
ADJ 5	Image position/print area adjustment (Print engine section)	ADJ 5A	Main scanning direction image position adjustment (Print engine section)	50-10
		ADJ 5B	Sub scanning direction image position/print area adjustment (Print engine section)	50-5
ADJ 6	Copy image distortion adjustment	ADJ 6A	Scanner (reading) unit parallelism adjustment	
		ADJ 6B	Copy image sub scanning direction distortion adjustment	
		ADJ 6C	Copy image main scanning direction distortion adjustment	
		ADJ 6D	Scan image distortion adjustment	
ADJ 7	Copy image focus (main scanning direction copy magnification ratio) adjustment (CCD unit position adjustment)			48-1
ADJ 8	Sub scanning direction copy magnification ratio adjustment			48-1
ADJ 9	Main scanning direction copy image position adjustment (Scanner (reading) section)			50-12
ADJ 10	Copy image position/image loss/void area adjustment			50-1/50-2
ADJ 11	Copy color balance/density adjustment	ADJ 11A	CCD gamma adjustment (CCD calibration) (Normal document copy mode)	63-3 (63-5)
		ADJ 11B	Copy color balance adjustment (Auto adjustment)	46-24
		ADJ 11C	Copy color balance adjustment (Manual adjustment)	46-21
		ADJ 11D	Copy density adjustment in low-density area (Normally unnecessary to adjust.)	46-1/2
		ADJ 11E	Copy color balance density adjustment (each copy mode) (Normally unnecessary to adjust.)	46-10 to 16
		ADJ 11F	CCD gamma adjustment (CCD calibration) (Copy document copy mode)	63-9
		ADJ 11G	Image edge section gamma/density adjustment (Black text and black line reproduction adjustment) (Normally unnecessary to adjust.)	46-27
		ADJ 11H	Copy color balance adjustment (Single color Copy mode) (Normally unnecessary to adjust.)	46-25
		ADJ 11I	Auto color balance adjustment by user (Copy color balance auto adjustment enable setting and adjustment)	26-53
		ADJ 11J	Background process conditions setting in the color auto copy mode, image auto recognition conditions setting, text-on-dot recognition conditions setting, filter setting	46-33

AR-BC320 (cont'd)

ADJ 12	Fusing pressure adjustment			
ADJ 13	Fusing paper guide position adjustment			
ADJ 14	Document size sensor adjustment	ADJ 14A	Original size sensor detection point adjustment	41-2
		ADJ 14B	Original size sensor sensitivity adjustment	41-2
ADJ 15	Manual paper feed tray paper size sensor adjustment			40-2
ADJ 16	Touch panel coordinates setting			65-1
ADJ 17	Power voltage adjustment	ADJ 17A	3.4 V power voltage adjustment	
		ADJ 17B	5.0 V power voltage adjustment	
ADJ 18	FAX/scanner mode image loss adjustment			50-27
ADJ 19	RADF adjustment	ADJ 19A	ADF adjustment (skew adjustment)	
		ADJ 19B	Magnet adjustment	
		ADJ 19C	Solenoid adjustment	
		ADJ 19D	ADF open position adjustment	
ADJ 20	Printer color balance adjustment	ADJ 20A	Printer automatic color balance adjustment	67-24
		ADJ 20B	Printer color balance adjustment (By the key operator program)	
ADJ 21	Collective adjustment of image position and magnification ratio	(*1)		50-28

*1: By executing the collective adjustment of image position and magnification ratio (ADJ21) (Automatic void adjustment SIM50-28), the adjustments of SIM50-10, 48-1, 50-12, and 50-1 can be simply and automatically performed at once.

Entering the Simulation Mode

Procedure to enter the Simulation Mode for AR-BC260/AR-BC320

1. **#/P** key (Program) ON → CLEAR **(C)** key ON → Asterisk (*****) key ON → Asterisk (*****) key ON → Ready for input of a main code of simulation

2. Entering a main code with the 10-key → START (Black copy) key ON

3. Entering a sub-code with the 10-key → START (Black copy) key ON

4. Select an item with the scroll key and the item key.

5. The machine enters the mode corresponding to the selected item.

   a. Press START key or EXECUTE key to start the simulation operation.

   b. To cancel the current simulation mode or to change the main code and the sub code, press the user setup key.

***** To cancel the simulation mode to return to the normal mode: Press CLEAR ALL (CA) key

Note: **Refer to Section 8 of the Service Manual for the specific Simulation List.**

Quick Reference Guide: AR-BC320/BC260

Troubleshooting (AR-BC260 & AR-BC320)

Kinds of Self-Diagnostic Messages

The self diagnostic messages are classified as follows:

Class 1	User	Troubles and warning messages (paper jam, consumable part life expiration, etc.) which can be processed by the user.
	Service	Troubles and warning messages (motor trouble, maintenance, etc.) which can be processed only by a serviceman.
	Other	—
Class 2	Warning	Warning messages (consumable part life expiration, etc.) for the user, which are not directly related to any machine trouble.
	Trouble	Related to a machine trouble. The machine is stopped.
	Other	—

Kinds of Self-Diagnostic Messages

The machine always monitors its own status.

When the machine detects a trouble, it stops operations and displays a trouble message.

A warning message is provided mainly when a consumable part is nearly or completely exhausted.

When a warning message is provided, the machine may be stopped or may not be stopped depending on the message.

The trouble and warning messages are indicated with the LCD and lamps.

Some trouble messages may be automatically cleared after removing the trouble, and some must be cleared with the simulation.

Some warning messages of consumable parts are automatically cleared when the trouble is repaired. Some other warning messages must be cleared by a simulation.

AR-BC260 Trouble Codes List

Main code	Sub code	Content
A0	00	PCU PWB error
C2	10	Transfer charger trouble (Black)
E7	01	Image data memory trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	20	LED controller initial trouble (Black)
	21	LED controller initial trouble (Cyan)
	22	LED controller initial trouble (Magenta)
	23	LED controller initial trouble (Yellow)
	24	LED controller output trouble (Black)
	25	LED controller output trouble (Cyan)
	26	LED controller output trouble (Magenta)
	27	LED controller output trouble (Yellow)
	28	LED control ASIC connection abnormality
	30	ICU PWB matching error
	40	Color correction data write abnormality
	41	Color correction data transfer abnormality
	80	ICU-SCN communication trouble (ICU detection)
	90	ICU-PCU communication trouble (ICU detection)
F1	00	Saddle finisher communication trouble (Machine detection)
	02	Saddle finisher transport motor trouble (Saddle finisher detection)
	03	Saddle finisher paddle motor trouble
	06	Saddle finisher slide motor trouble
	10	Saddle finisher staple motor trouble (Saddle finisher detection)
	11	Saddle finisher bundle process motor abnormality (Saddle finisher detection)
	15	Saddle finisher tray lift motor abnormality (Saddle finisher detection)
	19	Saddle finisher front alignment motor abnormality (Saddle finisher detection)
	20	Saddle finisher rear alignment motor abnormality (Saddle finisher detection)
	31	Saddle finisher fold sensor trouble
	32	Saddle finisher punch unit communication trouble
	33	Saddle finisher punch side registration motor trouble
	34	Saddle finisher punch motor trouble
	35	Saddle finisher punch side registration sensor trouble

AR-BC260 Trouble Codes List (cont'd)

	36	Saddle finisher punch registration sensor trouble
	37	Saddle finisher backup RAM trouble
	38	Saddle finisher punch backup RAM trouble
	39	Saddle finisher punch dust sensor trouble
	40	Saddle finisher punch power disconnection trouble
	83	Sorter push bar motor trouble
	89	Sorter bin shift motor trouble
	91	Automatic adjustment trouble of the paper sensor in the sorter bin

Main code	Sub code	Content
F2	39	Process thermistor breakdown
	40	Toner empty sensor abnormality (Black)
	41	Toner empty sensor abnormality (Cyan)
	42	Toner empty sensor abnormality (Magenta)
	43	Toner empty sensor abnormality (Yellow)
	44	Black image density sensor trouble (Transfer belt surface reflection ratio abnormality)
	45	Color image density sensor trouble (Calibration plate surface reflection ratio abnormality)
	58	Process humidity sensor breakdown
	70	Developing unit improper cartridge detection (Black)
	71	Developing unit improper cartridge detection (Cyan)
	72	Developing unit improper cartridge detection (Magenta)
	73	Developing unit improper cartridge detection (Yellow)
	74	Developing unit CRUM trouble (Black)
	75	Developing unit CRUM trouble (Cyan)
	76	Developing unit CRUM trouble (Magenta)
	77	Developing unit CRUM trouble (Yellow)
	78	Trouble of image density sensor for registration (Transfer belt surface reflection ratio abnormality)
	80	Half-tone process control 1st patch error (Black)
	81	Half-tone process control 1st patch error (Cyan)
	82	Half-tone process control 1st patch error (Magenta)
	83	Half-tone process control 1st patch error (Yellow)
	84	Half-tone process control 2nd patch error (Black)
	85	Half-tone process control 2nd patch error (Cyan)
	86	Half-tone process control 2nd patch error (Magenta)
	87	Half-tone process control 2nd patch error (Yellow)
	90	Half-tone process control limit error
F3	12	Cassette 1 lift up trouble
F6	00	ICU-FAX communication trouble (ICU detection)
	01	FAX expansion flash memory abnormality (ICU detection)
	04	FAX MODEM operation abnormality
	20	FAX write protect release
	21	Improper combination of the TEL/LIU PWB and the FAX soft switch.
	97	The FAX-BOX PWB is not one for the AR-BC260. (FAX detection)
	98	Improper combination of the FAX-BOX destination data and the main unit destination data
F7	01	FAX board EEPROM read/write error
F9	00	ICU-PRT communication trouble (ICU detection)
	01	PRT DRAM trouble
	03	NIC port check error
	20	HDD trouble (PRT controller detection)
H2	00	Thermistor open (HL1)
	01	Thermistor open (HL2)
H3	00	Fusing section high temperature trouble (THS1)
	01	Fusing section high temperature trouble (THS2)
H4	00	Fusing section low temperature trouble (HL1)
	01	Fusing section low temperature trouble (HL2)
H5	01	Five continuous detections of POD1 not-reached jam
L1	00	Mirror feed trouble
L3	00	Mirror return trouble
L4	02	Paper feed motor lock trouble
	06	Transfer belt lift motor trouble
	07	Transfer belt motor trouble
	11	Shift motor trouble
L8	01	Full wave signal not provided
	02	Full wave signal width abnormality
	04	Main power switch abnormality detection
PF	00	PIC copy inhibit signal reception
U0	00	ICU-OPE communication trouble (ICU/OPE detection)
U1	01	FAX battery abnormality
	02	RTC read trouble
U2	00	EEPROM read/write error (ICU detection)
	11	EEPROM check sum error (ICU detection)
	22	FAX backup SRAM memory check sum error
	30	Production No. data discrepancy (ICU ⇔ ICU)
	80	EEPROM read/write error (SCN)
	81	Adjustment value check sum error (SCN)
	90	EEPROM read/write error (PCU)
	91	Adjustment value check sum error (PCU)

AR-BC260 Trouble Codes List (cont'd)

U4	02	ADU alignment plate operation abnormality
U6	00	Desk communication trouble
	01	Desk tray 1 lift motor trouble
	02	Desk tray 2 lift motor trouble
	03	Desk tray 3 lift motor trouble
	09	LCC lift motor trouble
	10	Desk transport motor trouble
	20	LCC communication trouble
	21	LCC transport motor trouble
	22	LCC 24V power abnormality
	50	Desk incompatibility trouble
	51	LCC incompatibility trouble
U7	00	FIC communication trouble
UC	02	CPT-ASIC trouble (MFP PWB trouble)

End of AR-BC260 Trouble Codes List

AR-BC320 Trouble Codes List

Main code	Sub code	Content
A0	00	PCU PWB error
C2	10	Image density sensor error/Transfer charger error (Black)
E7	01	Image data memory trouble
	07	ICU gate array trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	20	LED controller initial trouble (Black)
	21	LED controller initial trouble (Cyan)
	22	LED controller initial trouble (Magenta)
	23	LED controller initial trouble (Yellow)
	24	LED controller output trouble (Black)
	25	LED controller output trouble (Cyan)
	26	LED controller output trouble (Magenta)
	27	LED controller output trouble (Yellow)
	28	LED control ASIC connection abnormality
	30	ICU PWB matching error
	40	Color correction data writing abnormality
	41	Color correction data transfer abnormality
	80	ICU-SCN communication trouble (ICU detection)
	90	ICU-PCU communication trouble (ICU detection)
F1	00	Finisher communication trouble (PCU detection)
	02	Finisher transport motor trouble (Finisher detection)
	03	Finisher paddle motor trouble
	06	Finisher slide motor trouble
	10	Finisher staple motor abnormality (Finisher detection)
	11	Finisher bundle process motor abnormality (Finisher detection)
	15	Finisher tray lift motor abnormality (Finisher detection)
	19	Finisher front alignment motor abnormality (Finisher detection)
	20	Finisher rear alignment motor abnormality (Finisher detection)
	31	Finisher fold sensor trouble
	32	Finisher punch unit communication trouble
	33	Finisher punch side registration motor trouble
	34	Finisher punch motor trouble
	35	Finisher punch side registration sensor trouble
	36	Finisher punch registration sensor trouble
	37	Finisher backup RAM trouble
	38	Finisher punch backup RAM trouble
	39	Finisher punch dust sensor trouble
	40	Finisher punch power disconnection trouble
	83	Sorter push bar motor trouble
	89	Sorter bin shift motor trouble
	91	Automatic adjustment trouble of the paper sensor in the sorter bin
F2	39	Process thermistor breakdown
	40	Toner empty sensor abnormality (Black)
	41	Toner empty sensor abnormality (Cyan)
	42	Toner empty sensor abnormality (Magenta)
	43	Toner empty sensor abnormality (Yellow)
	44	Black image density sensor trouble (Transfer belt surface reflection ratio abnormality)
	45	Color image density sensor trouble (Calibration plate surface reflection ratio abnormality)
	58	Process humidity sensor breakdown
F2	70	Developing unit improper cartridge detection (Black)
	71	Developing unit improper cartridge detection (Cyan)
	72	Developing unit improper cartridge detection (Magenta)
	73	Developing unit improper cartridge detection (Yellow)
	74	Developing unit CRUM trouble (Black)
	75	Developing unit CRUM trouble (Cyan)
	76	Developing unit CRUM trouble (Magenta)
	77	Developing unit CRUM trouble (Yellow)
	78	Trouble of image density sensor for registration (Transfer belt surface reflection ratio abnormality)
	80	Half-tone process control 1st batch error (Black)
	81	Half-tone process control 1st batch error (Cyan)
	82	Half-tone process control 1st batch error (Magenta)
	83	Half-tone process control 1st batch error (Yellow)
	84	Half-tone process control 2nd batch error (Black)
	85	Half-tone process control 2nd batch error (Cyan)
	86	Half-tone process control 2nd batch error (Magenta)
	87	Half-tone process control 2nd batch error (Yellow)
	90	Half-tone process control limit error
F3	12	Cassette 1 lift up trouble
F6	00	ICU-FAX communication trouble (ICU detection)
	01	FAX expansion flash memory abnormality (ICU detection)
	04	FAX MODEM operation abnormality
	20	FAX write protect release
	21	Improper combination of the TEL/LIU PWB and the FAX soft switch.
	97	The FAX-BOX PWB is not one for the AR-BC320. (FAX detection)
	98	Improper combination of the FAX-BOX destination data and the main unit destination data

AR-BC320 Trouble Codes List (cont'd)

Main code	Sub code	Content
F9	00	ICU-PRT communication trouble (ICU detection)
	01	PRT DRAM trouble
	02	NIC port check error
	20	HDD trouble (PRT controller detection)
H2	00	Thermistor open (HL1)
	01	Thermistor open (HL2)
H3	00	Fusing section high temperature trouble (HL1)
	01	Fusing section high temperature trouble (HL2)
H4	00	Fusing section low temperature trouble (HL1)
	01	Fusing section low temperature trouble (HL2)
H5	01	Five continuous detections of POD1 not-reached jam
L1	00	Mirror feed trouble
L3	00	Mirror return trouble
L4	02	Paper feed motor lock trouble
	06	Transfer belt lift motor trouble
	07	Transfer belt motor trouble
	11	Shift motor trouble
L8	01	Full wave signal not provided
	02	Full wave signal width abnormality
	04	Main power switch abnormality detection
PF	00	RIC copy inhibit signal reception
U0	00	ICU-OPE communication trouble (ICU/OPE detection)
U1	02	RTC read trouble
U2	00	EEPROM read/write error (ICU detection)
	11	EEPROM check sum error (ICU detection)
	30	Production No. data discrepancy (ICU ⇔ ICU)
	80	EEPROM read/write error (SCN detection)
	81	EEPROM check sum error (SCN detection)
	90	EEPROM read/write error (PCU detection)
	91	EEPROM check sum error (PCU detection)
U4	02	ADU alignment plate operation abnormality
U5	00	ADF communication trouble
	01	ADF resist sensor defect
	02	ADF repulsion sensor defect
	03	ADF timing sensor defect
	11	Paper feed motor operation abnormality
U6	00	Desk communication trouble
	01	Desk tray 1 lift motor trouble
	02	Desk tray 2 lift motor trouble
	03	Desk tray 3 lift motor trouble
	10	Desk transport motor trouble
U7	00	RIC communication trouble
UC	02	CPT-ASIC trouble (MFP PWB trouble)

End of AR-BC320 Trouble Codes List

Target ROM for Version Up

AR-BC320

Section	ROM kind				File name/Content	
	Name	Type	Capacity	Replacement	Program (with Copy ROM to ROM program)	Program (without Copy ROM to ROM program)
PCU PWB	PCU ROM	Flash ROM	8Mbit	Replaceable	WPcuXXX_src.pgm	WPcuXXX_d.pgm
ICU PWB	ICU ROM	Flash ROM	32Mbit x 2	Replaceable	WIcuXXX_src.pgm	WIcuXXX_d.pgm
MFP PWB	Operation control ROM	Flash ROM	16Mbit x 2	Replaceable	WOpeXXX_src.pgm	WOpeXXX_d.pgm
	Scanner control ROM	Flash ROM	16Mbit x 2	Replaceable	WScnXXX_src.pgm	WScnXXX_d.pgm
DESK CONTROL PWB	Desk control ROM	Flash ROM included in CPU		Fixed	WDskXXX_src.pgm	WDskXXX_d.pgm
RADF CONTROL PWB	RADF control ROM	EPROM		Replaceable		
LCC CONTROL PWB	LCC control ROM	EPROM		Replaceable		
FAX CONTROL PWB	FAX control ROM	Flash ROM	8Mbit x 2	Replaceable		
FINISHER CONTROL PWB	Finisher control ROM	EPROM		Replaceable		

Conditions Requiring ROM Version Up

1. To improve performance.
2. When installing a new spare part ROM to the machine for repair.
3. When installing a new repair spare parts PWB unit which has a ROM in it to the machine.
4. When the program in a ROM needs correction.

Flash ROM Version Up Method

(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

There are following two methods of Flash Rom version up.

1) By connecting a computer with the ICU PWB, the program data of Flash ROM is written from the computer to the Flash ROM on the ICU MAIN PWB.

   This method has the following two variations.

   a) All data in the PWB programs and the Flash ROM copy (ROM-ROM) program are written: (Making of the source ROM)

      In this method, the Flash ROM on the writing side needs capacity of 32Mbit x 2

      (In order to make a source ROM, the capacity of the Flash ROM must be as shown above.)

   b) Only each PWB program is written.

2) Two Flash ROM sockets on the ICU MAIN PWB are used to copy the program in the source ROM to another Flash ROM. (It normally takes 30 to 60 sec.)

   In this method, the Flash ROM (source ROM) made by the method of using a computer and writing the program to the Flash ROM is required.

(Note)

To make version up of several Flash ROM's of several machines, it is the most effective to make a source ROM by the method of 1) -a) and copy the data to several Flash ROM's by the method of 2).

ROM Version Up (cont'd)

AR-BC260

	ROM kind				File name/Content	
Section	Name	Type	Capacity	Replacement	Program (with Copy ROM to ROM program)	Program (without Copy ROM to ROM program)
PCU PWB	PCU ROM	Flash ROM	8Mbit	Replaceable	WPcuXXX_src.pgm	WPcuXXX_d.pgm
ICU PWB	ICU ROM	Flash ROM	32Mbit x 2	Replaceable	WIcuXXX_src.pgm	WIcuXXX_d.pgm
MFP PWB	Operation control ROM	Flash ROM	16Mbit x 2	Replaceable	WOpeXXX_src.pgm	WOpeXXX_d.pgm
	Scanner control ROM	Flash ROM	16Mbit x 2	Replaceable	WScnXXX_src.pgm	WScnXXX_d.pgm
DESK CONTROL PWB	Desk control ROM	Flash ROM included in CPU		Fixed	WDskXXX_src.pgm	WDskXXX_d.pgm
LCC CONTROL PWB	LCC control ROM	Flash ROM included in CPU		Fixed		
FAX CONTROL PWB	FAX control ROM	Flash ROM	8Mbit x 2	Replaceable		
FINISHER CONTROL PWB	Finisher control ROM	EPROM		Replaceable		

Conditions Requiring ROM Version Up

1. To improve performance.
2. When installing a new spare part ROM to the machine for repair.
3. When installing a new repair spare parts PWB unit which has a ROM in it to the machine.
4. When the program in a ROM needs correction.

Flash ROM Version Up Method

(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

There are following two methods of Flash Rom version up.

1) By connecting a computer with the ICU PWB, the program data of Flash ROM is written from the computer to the Flash ROM on the ICU MAIN PWB.

   This method has the following two variations.

   a) All data in the PWB programs and the Flash ROM copy (ROM-ROM) program are written: (Making of the source ROM)

      In this method, the Flash ROM on the writing side needs capacity of 32Mbit x 2

      (In order to make a source ROM, the capacity of the Flash ROM must be as shown above.)

   b) Only each PWB program is written.

2) Two Flash ROM sockets on the ICU MAIN PWB are used to copy the program in the source ROM to another Flash ROM. (It normally takes 30 to 60 sec.)

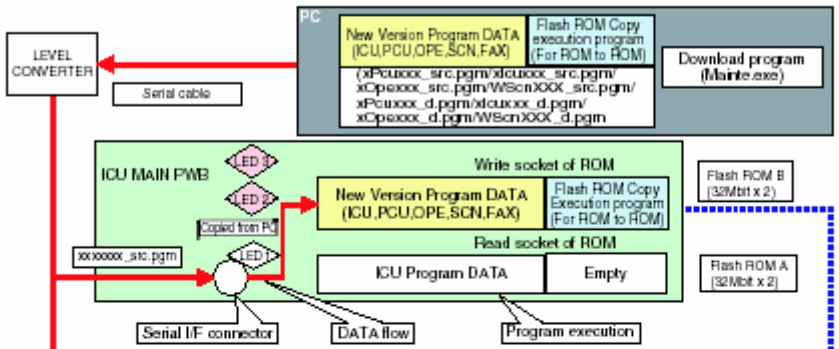
   In this method, the Flash ROM (source ROM) made by the method of using a computer and writing the program to the Flash ROM is required.

(Note)

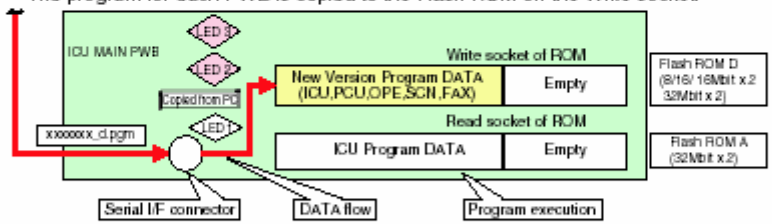
To make version up of several Flash ROM's of several machines, it is the most effective to make a source ROM by the method of 1) -a) and copy the data to several Flash ROM's by the method of 2).

ROM Version Up (cont'd)

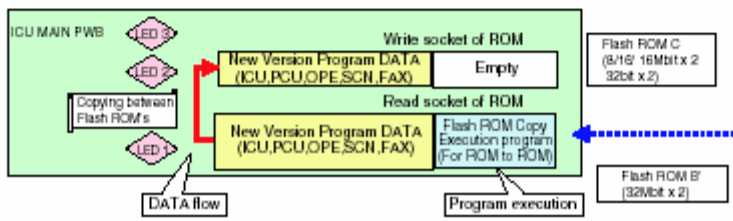
(1)-a Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM
(Making of source ROM)
The program for each PWB and the Flash ROM copy program are copied into the Flash ROM on the Write side socket.



(1)-b Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM
The program for each PWB is copied to the Flash ROM on the Write socket.



(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (source ROM) on the Read socket is copied to the Flash ROM (target ROM) on the Write socket.


ICU MAIN PWB
LED 3
LED 2
LED 1
Copying between Flash ROM's
Write socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Empty
Read socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Flash ROM Copy Execution program (For ROM to ROM)
Flash ROM C (8/16/ 16Mbit x 2 32bit x 2)
Flash ROM B' (32Mbit x 2)
DATA flow
Program execution

ROM Version Up (cont'd)

Relationship between copy (write) method and copy contents

(1)-a Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM (Making of source ROM)
The program for each PWB and the Flash ROM copy program are copied into the Flash ROM on the Write side socket.

PC side			Write side Flash Rom (Flash ROM B)				Note
Content		File name	Name	Capacity	Copied content		
Program for PCU Flash ROM	Program for Flash ROM copy (ROM to ROM)	xPcuxxx_src.pgm	For PCU Flash ROM	32Mbit x 2	Program for PCU Flash ROM	Program for Flash ROM copy (ROM to ROM)	The ICU Flash ROM with the copy (write) program in it must be connected to the Read side Flash ROM socket. When shipping, from the factory, the copy (write) program is provided for use. By this method with two Flash ROM sockets on the ICU PWB, the Flash ROM for copying is made.
Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	xIcuxxx_src.pgm	For ICU Flash ROM	32Mbit x 2	Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	xOpexxx_src.pgm	For operation control Flash ROM	32Mbit x 2	Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	WScnXXX_src.pgm	For scanner control Flash ROM	32Mbit x 2	Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for FAX control Flash ROM	Program for Flash ROM copy (ROM to ROM)		For FAX control Flash ROM	32Mbit x 2	Program for FAX control Flash ROM	Program for Flash ROM copy (ROM to ROM)	

ROM Version Up (cont'd)

(1)-b Method of writing the program data from PC to the Flash ROM on the ICU PWB
The program for each PWB is copied to the Flash ROM on the Write socket.

PC side			Write side Flash Rom (Flash ROM D)				Note
Content		File name	Name	Capacity	Copied content		
Program for PCU PWB Flash ROM		xpcuxxx_d.pgm	For PCU Flash ROM	8Mbit	Program for PCU Flash ROM		The ICU MAIN PWB Flash ROM with the copy (write) program in it must be connected to the Read side Flash ROM socket. When shipping, from the factory, the copy (write) program is provided for use.
Program for ICU PWB Flash ROM		xIcuxxx_d.pgm	For ICU Flash ROM	32Mbit x 2	Program for ICU Flash ROM		
Program for operation control Flash ROM		xOpexxx_d.pgm	For operation control Flash ROM	16Mbit x 2	Program for operation control Flash ROM		
Program for scanner control Flash ROM		WScnXXX_d.pgm	For scanner control Flash ROM	16Mbit x 2	Program for scanner control Flash ROM		
Program for FAX control Flash ROM			For FAX control Flash ROM	8Mbit x 2	Program for FAX control Flash ROM		

ROM Version Up (cont'd)

(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (Source ROM) on the Read side Flash ROM socket is copied to a Flash ROM on the Write side socket.

Read side Flash ROM (ROM B) (*1)			Write side Flash ROM (Flash ROM C)				Note
Capacity	Content		Name	Capacity	Copied content		
32Mbit x 2	Program for PCU Flash ROM	Program for Flash ROM Copy (ROM to ROM)	For PCU Flash ROM	8Mbit	Program for PCU Flash ROM		The Flash ROM on the Read side is the source ROM for PCU, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	For ICU Flash ROM	32Mbit x 2	Program for ICU Flash ROM		The Flash ROM on the Read side is the source ROM for ICU, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	For operation control Flash ROM	16Mbit x 2	Program for operation control Flash ROM		The Flash ROM on the Read side is the source ROM for operation control PWB, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	Program for scanner control Flash ROM	16Mbit x 2	Program for scanner control Flash ROM		
32Mbit x 2	Program for FAX control Flash ROM		Program for FAX control Flash ROM	8Mbit x 2	Program for FAX control Flash ROM		

*1: This Flash ROM was made by writing the program data from PC to the ICU MAIN PWB Flash ROM.

NOTE: Besides this method of Flash ROM version up, there is another method by use of a machine of the AR-350/450 series. This method, however, allows the version up work in a shorter time. For details, refer to Technical Report ARE-352 (ARJ-390).

(Desk control ROM)

The desk unit control program is installed in the Flash ROM in the CPU of the desk unit control PWB.

Therefore, this Flash ROM cannot be replaced physically.

The PC is connected with the desk unit control PWB, and the Flash Rom program is written from the PC to the Flash Rom in the CPU.

PC side		Write side (Flash ROM in the CPU on the Desk unit control PWB)
Content	File name	Copied content
Program for Desk control PWB Flash ROM	WDskxxx_d.pgm	Program for Desk control PWB Flash ROM

ROM Version Up (cont'd)

Relationship between Each ROM and Version Up

When making version up of ROM, check the combination with the version of ROM installed to the other PWB including options.

In some combination of ROM versions, the machine may not operate normally.

If all the ROM's are of the latest versions, there is no problem.

Necessary Items for Version Up (Copy) of Flash ROM

(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

(1)-a Method of writing the program data from a PC to the Flash ROM on the ICU MAIN PWB. (Making of the source ROM) The program for each PWB and the Flash ROM copy program are copied to a Flash ROM on the Write socket.

Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software to write the program data from a PC to the Flash ROM (Mainte_xxxx.exe)
(PCU MAIN PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xPcuxxx_src.pgm
(ICU MAIN PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xIcuxxx_src.pgm
(Operation control PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xOpexxx_src.pgm
Program for scanner control Flash ROM/Program for Flash ROM copy (ROM to ROM)	WScnXXX_src.pgm
Program for FAX control Flash ROM/Program for Flash Rom copy (ROM to ROM)	
ICU MAIN PWB Flash ROM (including the program for MAIN ICU PWB and the Flash ROM copy (PC - ROM) program) (32Mbit x 2) (Flash ROM A)	Flash ROM which has the function of writing the program data from PC to the Flash ROM on the ICU
Writing Flash ROM (32Mbit x 2) (Flash ROM B)	Flash ROM to make a source ROM

ROM Version Up (cont'd)

(1)-b Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM.
The program for each PWB is copied to the Flash ROM on the Write side socket.

Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software for writing the program data from a PC to the Flash ROM (Mainte.exe)
PCU Flash ROM program file	xpcuxxx_d.pgm
ICU Flash ROM program file	xlcuxxx_d.pgm
Operation control PWB Flash ROM program file	xOpexxx_d.pgm
Scanner control Flash ROM program	WScnXXX_d.pgm
FAX control Flash ROM program	

Necessary item	Note
Flash Rom for ICU (including the program for Main ICU PWB and the Flash ROM copy (PC - ROM) program (32Mbit x 2) (Flash ROM A)	Flash ROM (ICU PWB) having the function to write program data from PC to the Flash ROM on the ICU PWB.
Writing Flash ROM (16Mbit x 2/ 16Mbit/8Mbit/32Mbit x 2/8Mbit x 2)	The type (capacity) of the Flash ROM depends on which Flash ROM is made among the CPU PWB, the ICU PWB, and the operation PWB.

(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (source ROM) on the Read side Flash ROM socket is copied to the Flash ROM on the Write side socket.

Necessary item	Note
Flash Rom including the ICU program and the Flash ROM copy (ROM to ROM) program (Flash ROM B) (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Flash Rom including the PCU program and the Flash ROM copy (ROM to ROM) program (Flash ROM B) (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Flash Rom including the program for the operation control PWB and the Flash ROM copy (ROM to ROM) program (Flash ROM B') (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)

ROM Version Up (cont'd)

Program for scanner control Flash ROM/Flash ROM copy (ROM to ROM) program	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Program for FAX control Flash ROM/Flash ROM copy (ROM to ROM) program	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Writing Flash ROM/16Mbit x 2/ 16Mbit/8iMbit/32Mbit x 2) (Flash ROM C)	The type (capacity) of Flash ROM is determined depending on the kind of Flash ROM (in the PCU PWB, in the ICU PWB, or in the operation control PWB).

(In the case of Desk control ROM)

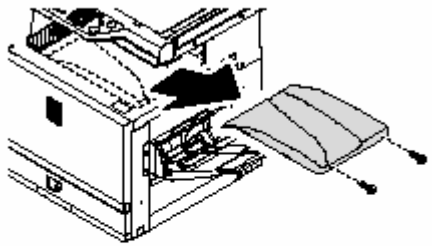
Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/ UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software to write the program data from PC to the Flash ROM. (Mainte_xxxx.exe)
Desk control Flash ROM program file	WDskxxx_d.pgm

Flash ROM Version Up (Firmware ROM Upgrade) Procedures

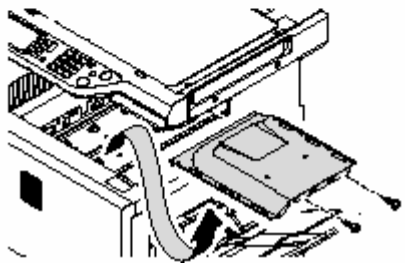
(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

(Preliminary procedure)

1) Remove the machine paper tray cabinet. (2 screws)

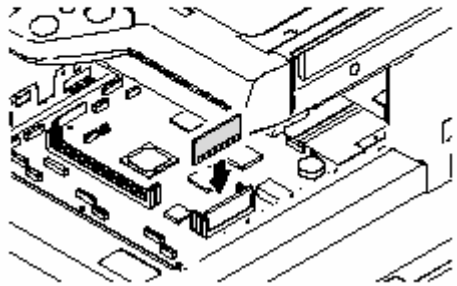


2) Remove the shield plate. (2 screws)



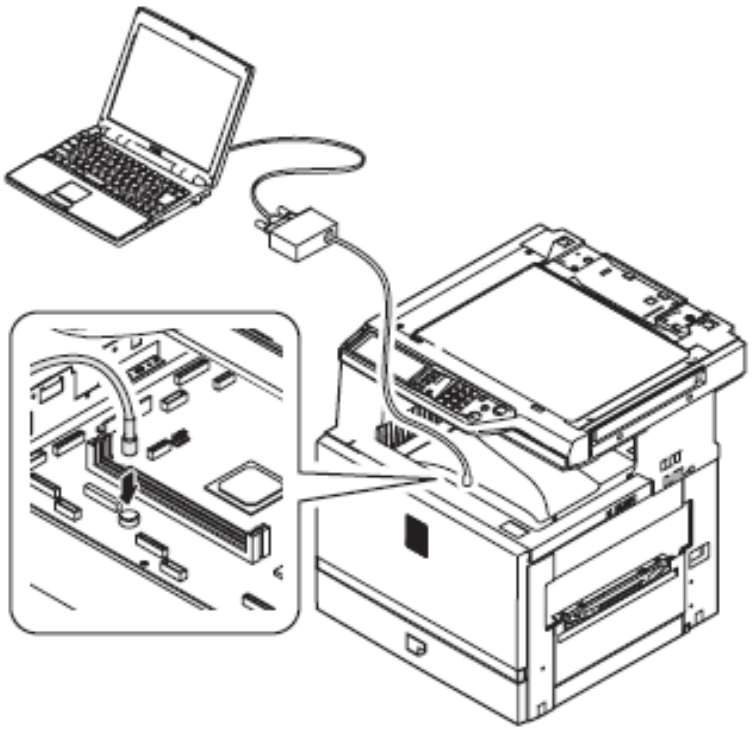
A. By using a computer and the ICU PWB, the program data of Flash ROM is written from the computer to the Flash ROM of the ICU PWB.

1) Check that the power of the machine is turned off. Install the Flash ROM which is to be upgraded (copied) to the write socket of the ICU PWB.



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

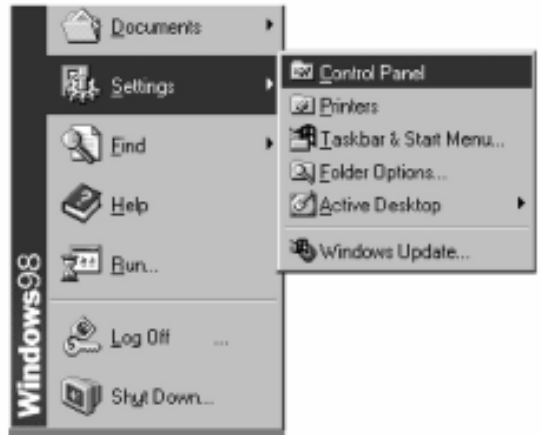
2) Connect the computer with the level converter.



3) Connect the serial I/F connector on the ICU MAIN PWB with the level converter.
4) Turn on the computer to start Windows.
5) Turn on the machine.
6) Set the communication speed on the computer side.

In the case of Windows 95/98:

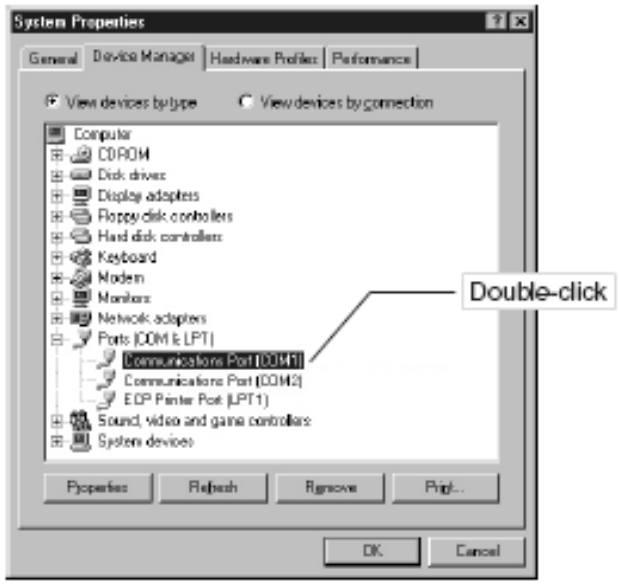
(6-1) Open the "Control panel."



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

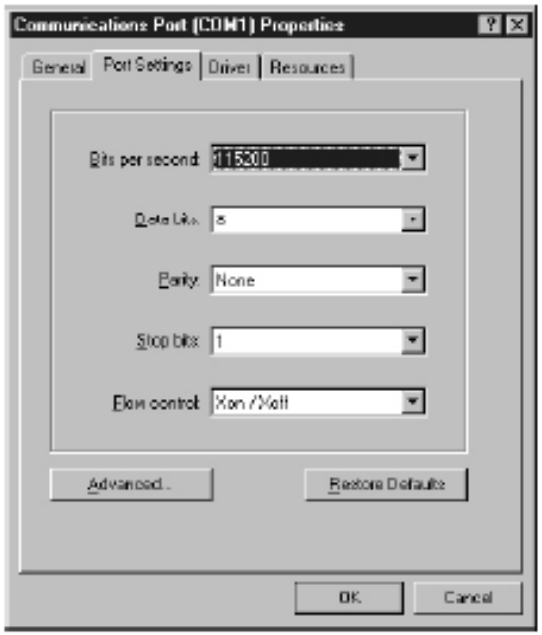
(6-2) Open the "System."

(6-3) Click the "Device manager." Click the "Port (COM/LPT)" and double-click the "Communication port (COM*)" to be used.



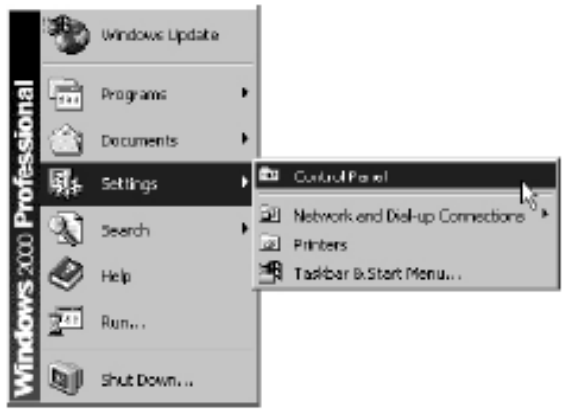
Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(6-4) Open the "Port setup" tab, and enter "115200" in the column of bit/sec.
If the above communication speed cannot be set, select and set one of the following speeds.
9600/19200/38600/57600



In the case of Windows 2000:

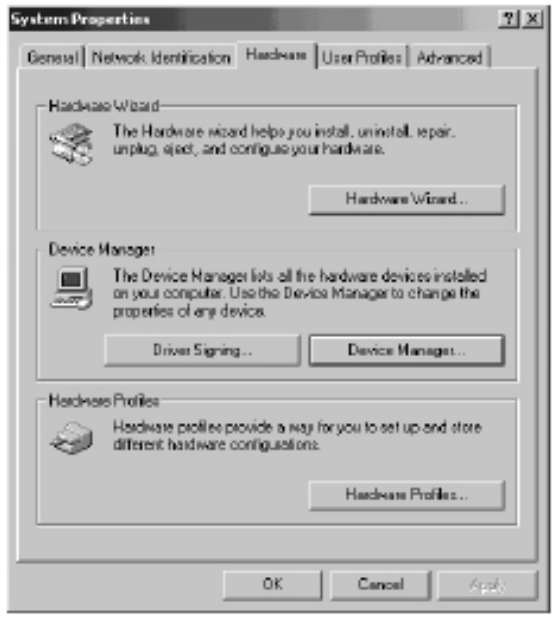
(6-1) Open the "Control panel."



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

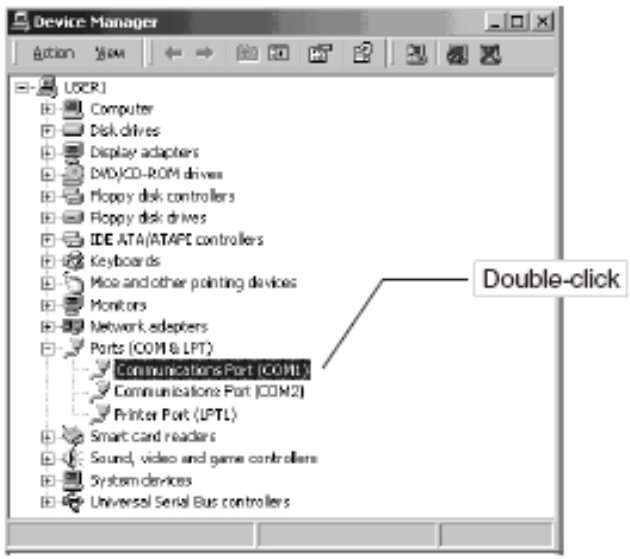
(6-2) Open the "System."

(6-3) Select the "Device manager (D)" on the hardware menu.

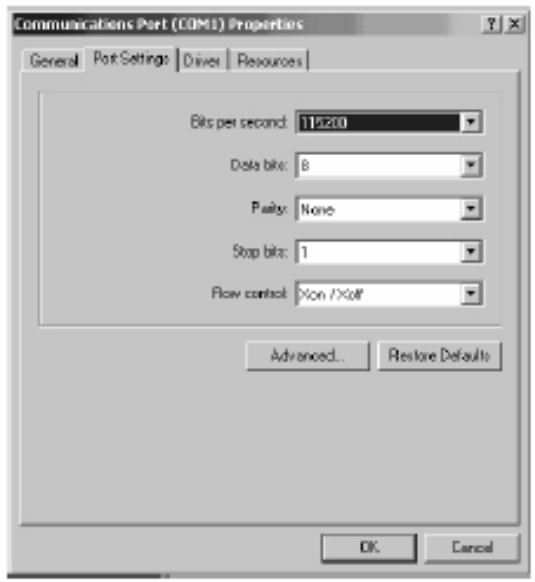

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.
Hardware Wizard...
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Driver Signing...
Device Manager...
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles...
OK
Cancel
Apply

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(6-4) Click the "Port (COM/LPT)" and douche-click the "Communication port (COM*)" to be used.



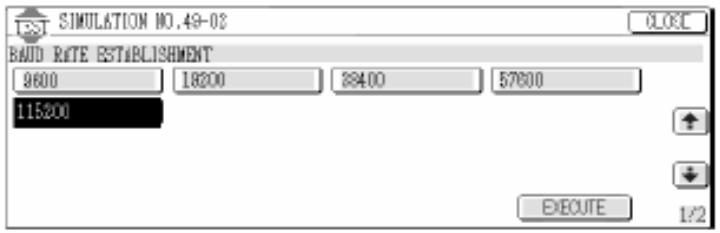
(6-5) Open the "Port setup" tab, and enter "115200" in the column of bit/sec.
If the above communication speed cannot be set, select and set one of the following speeds.
9600/19200/38600/57600



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

7) Set the communication speed on the machine side. The set value of communication speed on the computer side must be the same as that on the machine side.

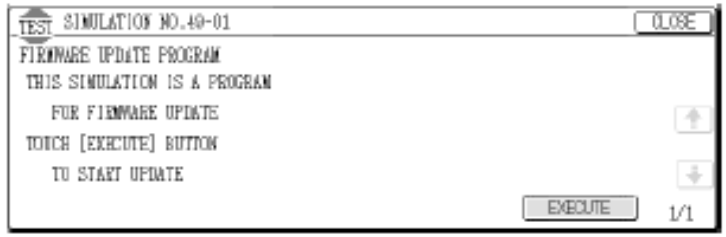
(7-1) Enter the simulation 49-2 mode.



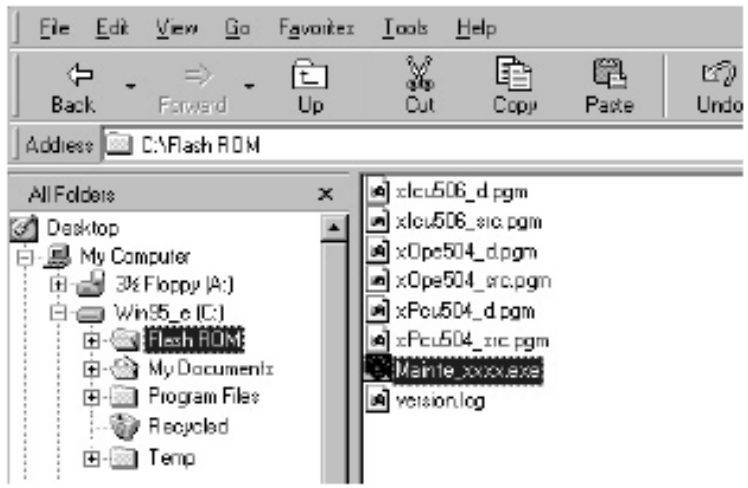
(7-2) Press the key of the same communication speed as what is set in procedure 8). (The set communication speed is highlighted.)

(7-3) Cancel the simulation 49-2.

8) Enter the simulation mode 49-1 mode, and press the ENTER key. (The machine enters the download (Flash ROM writing) mode.)

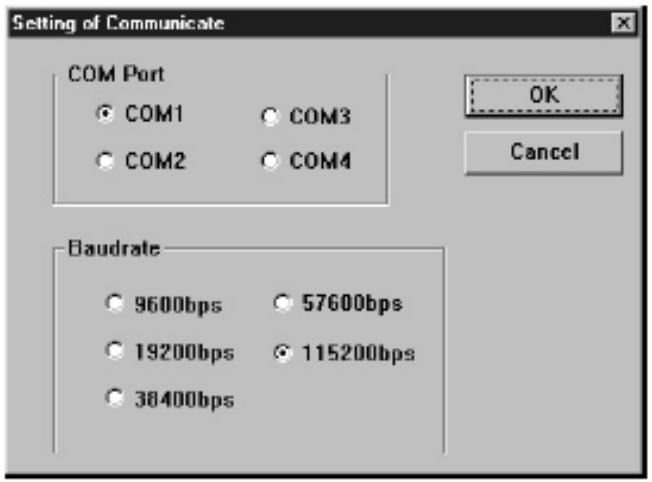


9) Start the download program on the computer side. (Double-click the Mainte.exe file.)



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

10) Select the communication speed on the option menu. (Set the communication speed same as what is set in procedures 6) and 7).)



11) Select the data file to be copied (written) to the Flash ROM installed to the Write socket on the ICU MAIN PWB in procedure 1).

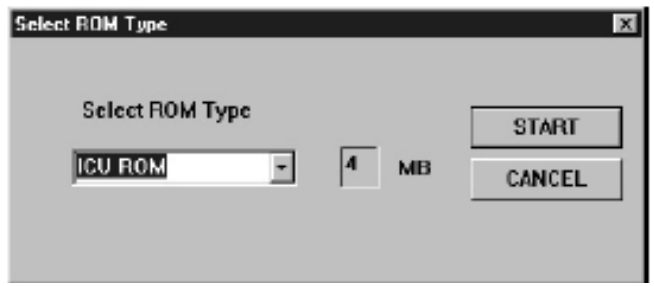
(11-1) Double-click the "Simulation Command List " holder.

(11-2) Double-click the "Special" holder.

(11-3) Double-click the "Program Download" file.

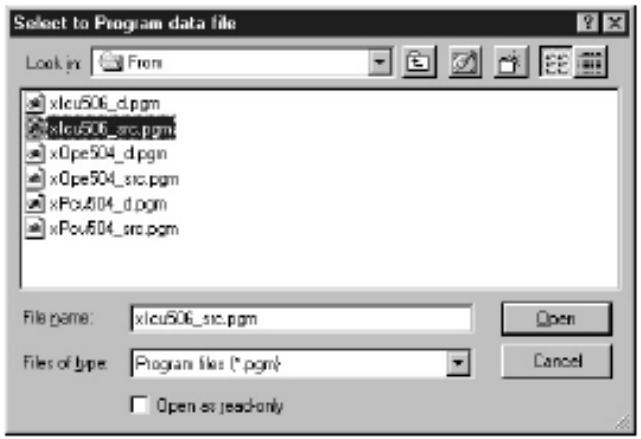
(11-4) The message of "Program Download OK ?" is displayed. Press the OK button.

(11-5) Select the data (PWB name) to be written and click the START button.



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(11-6) Select the data file to be written, and click the "Open" button.



With the above procedure, downloading (writing to the Flash ROM) is started.

(NOTE) Selection of data files to be written determines whether a source ROM (which includes the latest version program and the Flash ROM copy program) or a ROM which has only the latest version program is made.

12) Confirm that downloading (copying to the Flash ROM) is completed on the computer display and on the LCD display. It normally takes 5 to 7 minutes to copy (write) to the Flash ROM.

When downloading is normally completed, the following indications are shown.

- LED3 on the ICU PWB are turned off, and LED1 and LED2 flash at a low speed.
- "FIRMWARE UPGRADE FINISHED" is displayed on the LCD.

13) Cancel the simulation 49-1, and turn off the power of the machine.

(Note) If the Flash ROM is removed from or installed to the machine with the machine power ON, the Flash ROM may be destroyed. Be sure to turn off the power of the machine before removing or installing the Flash ROM.

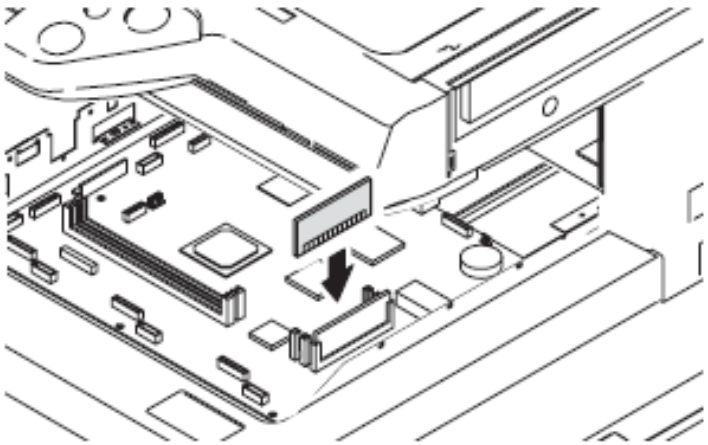
14) Remove the Flash ROM (which was upgraded) installed to the ICU MAIN PWB Write socket in procedure 1).

When another Flash ROM is to be upgraded, install it to the ICU PWB Write socket and turn on the power, and perform procedures 11) through 14).

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

B. Method using two Flash ROM sockets on the ICU MAIN PWB to copy between Flash ROM's

1) Check that the power of the machine is OFF. Install the Flash ROM (of either of ICU PWB, PCU PWB, or operation control PWB) to the ICU PWB Write socket.



2) Install the source Flash ROM (which has the program data of either of ICU PWB, PCU PWB, or operation control PWB) to the ICU PWB Read socket.
3) Turn on the power of the machine. Copying is started. When copying is completed, LED3 on the ICU PWB are turned off, and LED1 and LED2 flash at a low speed. It normally takes 30 to 60 sec to copy (write) to the Flash ROM.
4) Turn off the power of the machine, and remove the Flash ROM's from the Read and the Write sockets.

(After work)

1) Installed the copied Flash ROM to the specified PWB.
2) Turn on the power of the machine and check that the machine operates normally.
3) Use the simulation 22-5 to check each ROM version.
4) Install the shield plate and the stopper shift. (3 screws)
5) Attach the right upper cabinet of the machine. (2 screws)

(NOTE)

The monitor displays before and after and during the Flash ROM version up (copy) operation are shown below. If the Flash ROM version up operation is not completed normally or if the Flash ROM is not installed to the socket properly, a trouble code is displayed. In that case, perform the countermeasures shown in the table below.

(1) ICU MAIN PWB monitor LED lighting specification

The monitor LED status during copy (write) operation of PC to Flash ROM and Flash ROM to Flash ROM is shown below. In the copy mode of Flash ROM to Flash ROM, the machine status is indicated only with the monitor LED.

While in the copy mode of PC to Flash ROM, the status is indicated on the operation panel or the PC monitor.

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

Status LED lighting specifications

	LED1	LED2	LED3	Mode
Status 1	Low-speed flashing	Low-speed flashing	OFF	Normal operation
Status 2	High-speed flashing	High-speed flashing	High-speed flashing	System down
Display when writing the program data from PC to Flash ROM				
Status 3	ON	OFF	OFF	Download SIM start
Status 4	OFF	Flashing	OFF	Download ROM not-installed error
Status 5	Flashing	ON	OFF	During data transfer from PC
Status 6	Flashing	Flashing	OFF	Data transfer error from PC
Status 7	ON	ON	OFF	Flash deleting
Status 8	OFF	Flashing	OFF	Flash deleting error
Status 9	Flashing	ON	OFF	Flash writing
Status 10	Flashing	Flashing	OFF	Flash writing error
Status 11	ON	ON	OFF	Verifying
Status 12	ON	Flashing	OFF	Verifying error
Status 13	Low-speed flashing	Low-speed flashing	OFF	Normal completion

	LED1	LED2	LED3	Mode
Display when copying data from Flash ROM to Flash ROM				
Status 14	ON	ON	OFF	ROM copy start
Status 15	OFF	Flashing	OFF	Download ROM not-installed error
Status 16	ON	ON	OFF	ROM capacity checking
Status 17	ON	Flashing	OFF	ROM capacity check error
Status 18	ON	ON	OFF	Flash deleting
Status 19	OFF	Flashing	OFF	Flash deleting error
Status 20	Flashing	ON	OFF	Flash writing
Status 21	Flashing	Flashing	OFF	Flash writing error
Status 22	ON	ON	OFF	Verifying
Status 23	ON	Flashing	OFF	Verifying error
Status 24	Low-speed flashing	Low-speed flashing	OFF	Normal completion

Status in bold means an error

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(2) Operation panel display specifications (SIM 49-1)
The operation panel display status in PC to Flash ROM copying (writing) is shown in the table below.

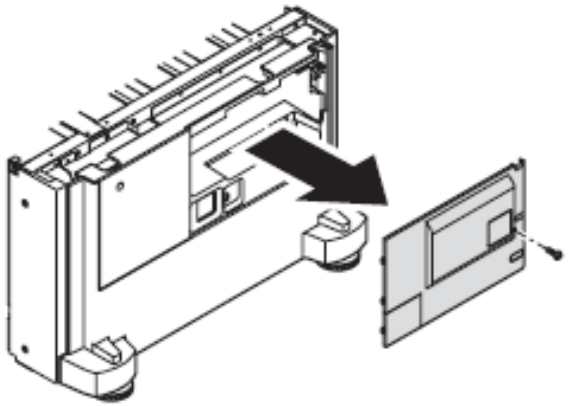
Display message	Operation/Content	Countermeasures
NOW EXECUTING ...	Simulation start	
THIS COPIER IS NOT CONNECTED TO PC.	The cable is not connected.	Turn off the power of the copier machine, and check the connection again.
FLASH ROM ISN'T INSERTED INTO A CONNCTOR.	The writing Flash ROM is not inserted into the socket.	Turn off the copier machine, insert the Flash ROM.
WAITING FOR DATA	Waiting for starting the Flash ROM writing software on PC side	Boot the software for writing to Flash ROM on PC.
ERASING FLASH ...	Deleting	
WRITING FLASH ...	Writing	
VERIFYING FLASH ...	Verifying	
FLASH ERASE ERROR.	Failure in erase of Flash ROM for writing	Try again, or replace the Flash ROM.
FLASH WRITE ERROR.	Failure in copy (write) of Flash ROM for writing	Try again, or replace the Flash ROM.
FLASH VERIFY ERROR.	Failure in verifying Flash ROM content for writing	Try again, or replace the Flash ROM.
DOWNLOADING NOW ...	Data downloading	
DOWNLOAD ERROR.	Data transfer failure	Tray data transfer again, or tray simulation again.
FIRMWARE UPGRADE FINISHED.	Data transfer complete	
THIS SIMULATION DOES NOT WORK IN THIS ROM VERSION.	Displayed when ICU Flash ROM does not support this simulation.	ICU Flash ROM Version up

When the power of PC is down during data transfer, data transfer is performed from the beginning.

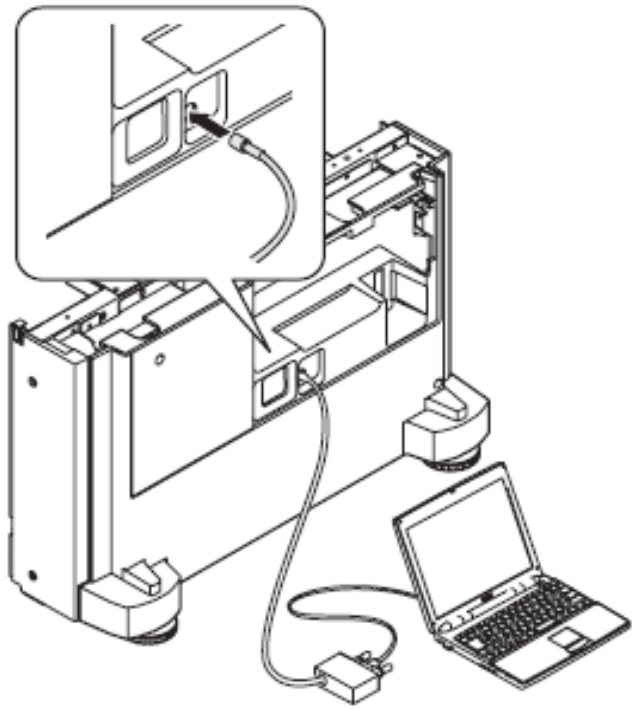
Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(In the case of Desk control PWB)

1) Remove the desk unit power source cover. (One screw)

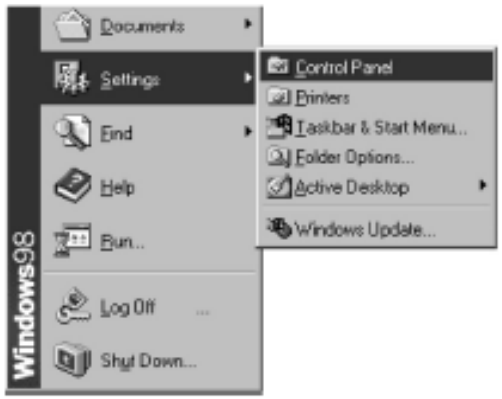


2) Check that the machine power is off, and connect the PC and the level converter desk unit serial I/F connector and the level converter.



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

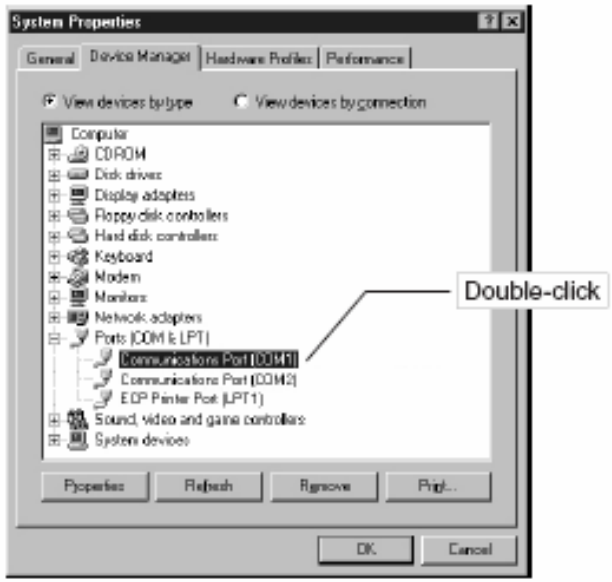
3) Turn on the PC, and start Windows.
4) Set the data transfer speed of PC.
   In the case of Windows 95/98:
   (4-1) Open the "Control panel."



(4-2) Open the "System."

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(4-3) Click the "Device manager" and click the "Port (COM/LPT)," and double-click the "Communication port (COM*) to be used.

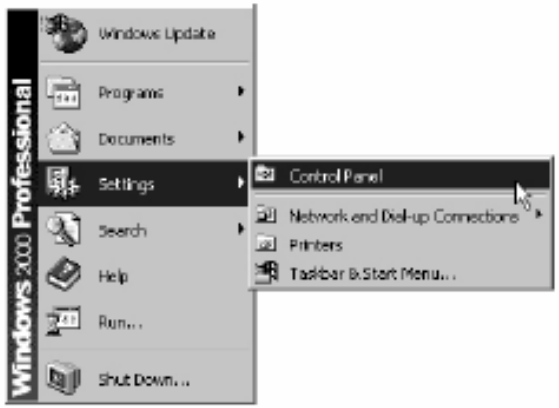


(4-4) Set the bit/sec of port set menu to 38400.
If 38400 cannot be set, set either of the following communication speeds.
9600/19200

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

In the case of Windows 2000:

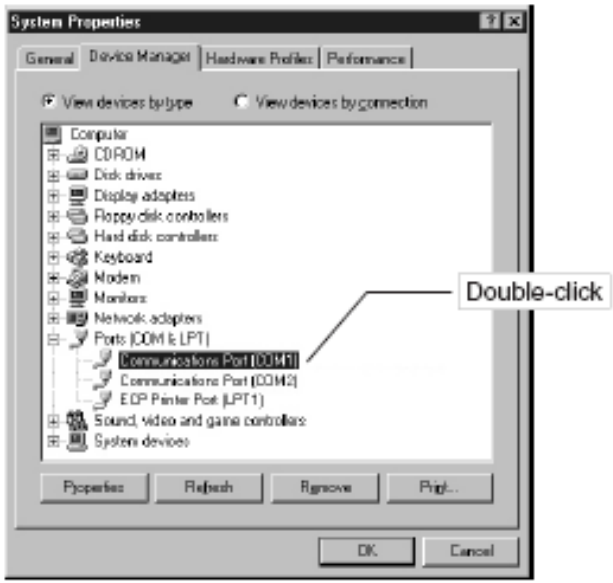
(4-1) Open the "Control panel."



(4-2) Open the "System."

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

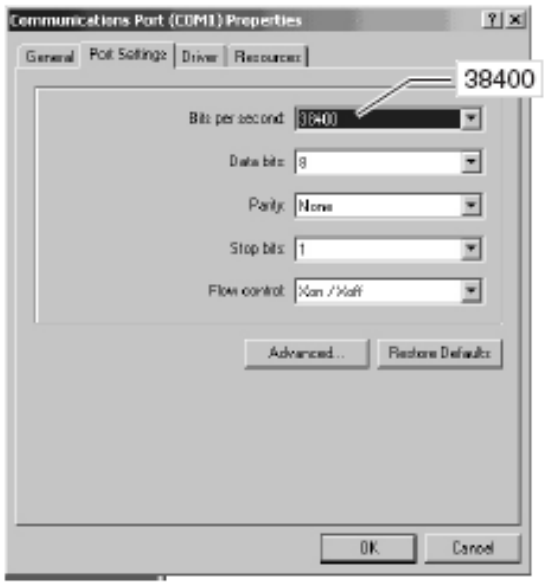
(4-3) Click the "Device manager" and click the "Port (COM/LPT)," and double-click the "Communication port (COM*) to be used.



(4-4) Set the bit/sec of port set menu to 38400.
If 38400 cannot be set, set either of the following communication speeds.
9600/19200

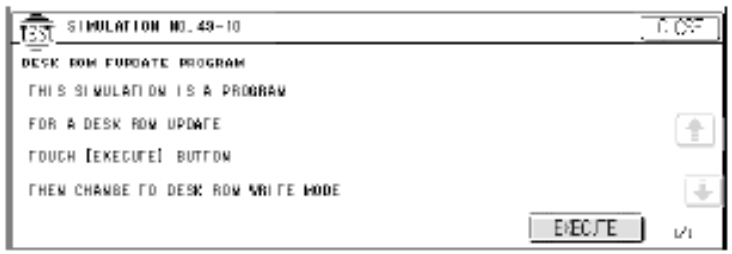
Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

(4-5) Set the bit/sec of the port set menu to 38400, and click the OK button to close the communication port (COM*) property.
If 38400 cannot be set, set either of the following communication speeds.
9600/19200

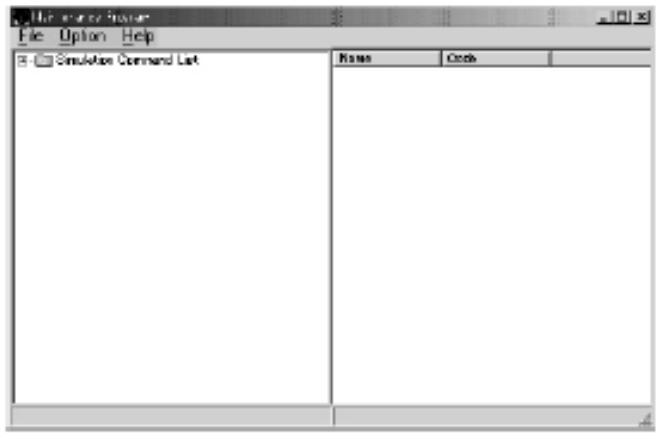


5) Turn on the power of the machine.

6) Enter the simulation 49-10 mode. (Press the EXECUTE key to enter the download (Flash ROM writing) mode.)

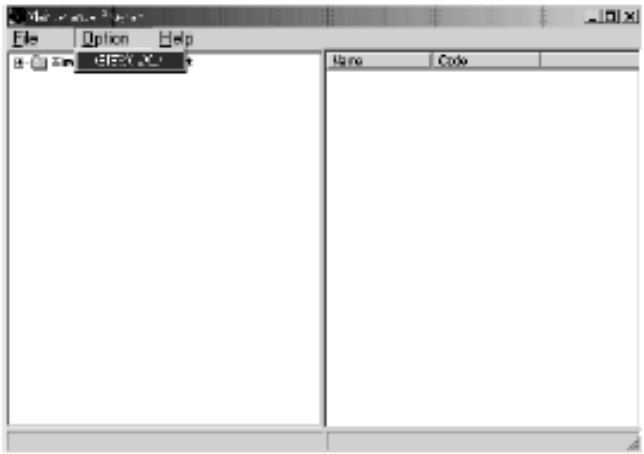

SIMULATION NO. 49-10
DESK ROM UPDATE PROGRAM
THIS SIMULATION IS A PROGRAM
FOR A DESK ROM UPDATE
TOUCH [EXECUTE] BUTTON
THEN CHANGE TO DESK ROM WRITE MODE
EXECUTE

7) Start the download program on the PC side by double-clicking the Mainte.exe file. The following window is indicated.



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

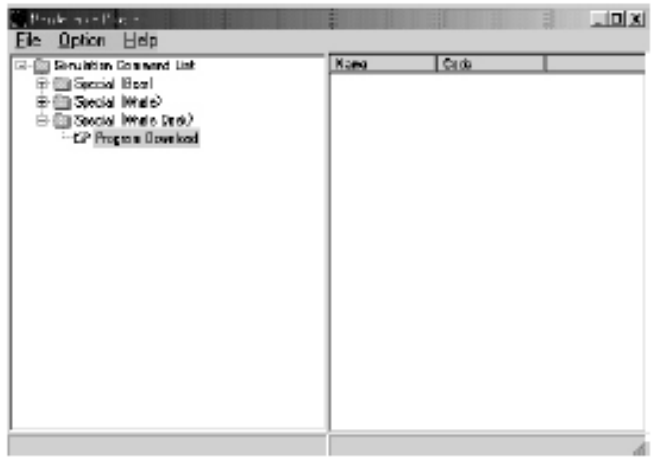
8) Select the communication setup in the option menu, and set the communication speed same as which is set in procedure 4).



9) Select the data file to be written.

(9-1) Double-click the Simulation Command List folder.

(9-2) Double-click the Special (Whale Desk) folder.



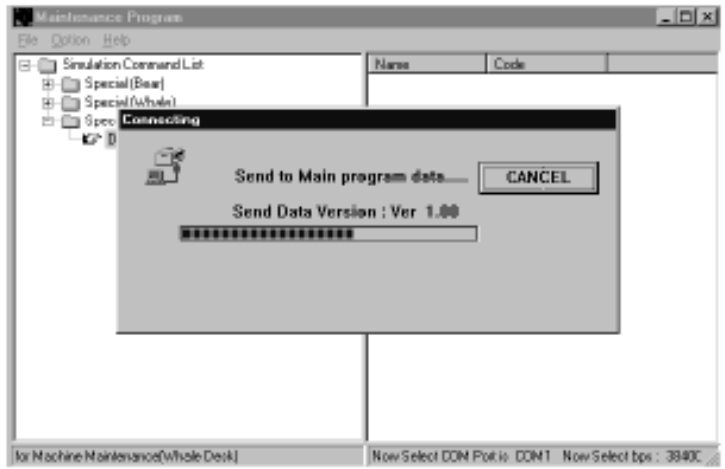
(9-3) Double-click the file Program Download, and the following dialog is displayed. Click the OK button.

Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

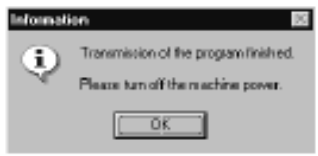
(9-4) Then the following dialog is displayed. Click the START button.

(9-5) The file selection dialog is displayed. Select the data file to be written, and click the Open button.

10) With the above procedures, writing is started and the following display is shown.



11) Check on the PC display that writing is completed. (When writing is normally completed, the following dialog is displayed.)



Flash ROM Version Up (Firmware ROM Upgrade) Procedures (cont'd)

12) Turn off the machine power, and disconnect the level converter.

(NOTE) When connecting or disconnecting the level converter, be sure to turn off the machine power in advance. If the level converter is connected or disconnected with the power ON, the level converter may be damaged.

End of Flash ROM Version Up Procedures

Operation Panel

(1) ICU MAIN PWB monitor LED lighting specification

The monitor LED status during copy (write) operation of PC to Flash ROM and Flash ROM to Flash ROM is shown below. In the copy mode of Flash ROM to Flash ROM, the machine status is indicated only with the monitor LED.

While in the copy mode of PC to Flash ROM, the status is indicated on the operation panel or the PC monitor.

Status LED lighting specifications

	LED1	LED2	LED3	Mode
Status 1	Low-speed flashing	Low-speed flashing	OFF	Normal operation
Status 2	High-speed flashing	High-speed flashing	High-speed flashing	System down
Display when writing the program data from PC to Flash ROM				
Status 3	ON	OFF	OFF	Download SIM start
Status 4	OFF	Flashing	OFF	Download ROM not-installed error
Status 5	Flashing	ON	OFF	During data transfer from PC
Status 6	Flashing	Flashing	OFF	Data transfer error from PC
Status 7	ON	ON	OFF	Flash deleting
Status 8	OFF	Flashing	OFF	Flash deleting error
Status 9	Flashing	ON	OFF	Flash writing
Status 10	Flashing	Flashing	OFF	Flash writing error
Status 11	ON	ON	OFF	Verifying
Status 12	ON	Flashing	OFF	Verifying error
Status 13	Low-speed flashing	Low-speed flashing	OFF	Normal completion

	LED1	LED2	LED3	Mode
Display when copying data from Flash ROM to Flash ROM				
Status 14	ON	ON	OFF	ROM copy start
Status 15	OFF	Flashing	OFF	Download ROM not-installed error
Status 16	ON	ON	OFF	ROM capacity checking
Status 17	ON	Flashing	OFF	ROM capacity check error
Status 18	ON	ON	OFF	Flash deleting
Status 19	OFF	Flashing	OFF	Flash deleting error
Status 20	Flashing	ON	OFF	Flash writing
Status 21	Flashing	Flashing	OFF	Flash writing error
Status 22	ON	ON	OFF	Verifying
Status 23	ON	Flashing	OFF	Verifying error
Status 24	Low-speed flashing	Low-speed flashing	OFF	Normal completion

Status in bold means an error